## Goal III. Create new products and services

#### Articulate and codify a coherent vision for R&D.

Status: In 2002 the Legislature formally moved responsibility for research and development activities into the Business, Research and Economic Development Committee.

We will measure our success in reaching this goal by:

✓ increasing R&D spending by industry to \$835 per worker (2001 dollars)

• MTI companies indicate that 57% of their revenues were derived from sales outside of Maine, demonstrating

an ability to compete in national markets.



Status: The Legislature has invested nearly \$16 million through the Maine Technology Institute in 280 projects. These funds are used to match private investments for the commercialization of new technologies, products, and services.

#### Encourage investment by industry in research and development.

Status: In FY02 the Maine Technology Institute funded 122 projects totaling \$3 million in state funds and \$3.3 million in private funds. Together with matching funds MTI is supporting over \$37 million in research and development leading to commercialization of new products and services in the state's 16 counties. In nearly half of these projects MTIfunded companies chose to involve faculty and staff of the University of Maine System.

Other highlights include:

- State funds provided to MTI have leveraged 14 times as much in additional public and private funds;
- These Maine companies purchased 61% of their raw materials and services from other Maine companies;

#### Develop a strategy to grow industry clusters.

Maine Science & Technology Foundation released Assessing Maine's Technology Clusters in June 2002 This report was subsequently used by the Maine

Status: The Program has provided intellectual eager to learn about the patent process, trademark Technology Development Centers and the Maine

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Status: USM released an assessment of the marine biotechnology industry in 2000. The and convened a series of stakeholder meetings. Technology Institute to refine its cluster enhancement award program.

#### Provide ongoing support to the Maine Patent Program.

property counseling and assistance to over 130 Maine inventors and entrepreneurs, with an average of ten new clients per month currently seeking services. In addition, its educational seminars have reached several hundred Mainers rights, intellectual property strategies and licensing, and product commercialization. The Program has active partnerships with the Maine Technology Institute, Maine Small Business Development Centers, Maine Applied Manufacturing Extension Partnership.

# 30 & 1000

A Progress Report

Our Knowledge-based Economy Development Strategy

#### What is the origin of 30 and 1000?

Public, non-profit and private leaders with a shared interest in economic development have worked collaboratively since 2000 to create and implement Maine's 30 & 1000 Strategy. They include representatives from our higher education institutions, non-profit research laboratories, business community, Legislature and government. The strategy contains three goals:

- 1. create, retain and attract knowledge workers;
- 2. conduct world-class research;
- 3. create new products and services.

This knowledge-based strategy is nested within two key documents: 1) the state's economic development strategy, and 2) Maine's science and technology

For more information:

- www.maine.gov/spo/publications/pdf/30and1000.pdf
- www.econdevmaine. com/admin.htm
- www.mstf.org/publications/ plan2001/index.html

## Introduction

Advanced education and investment in research and development strongly correlate with a state's per capita income. Analysis shows that if Maine improves its performance in these two areas, we can *increase per capita* income to the national average or above in 10 years.

Based on a review of 10 years of data in all 50 states, two factors consistently appear in states with high per capita incomes: 1) the percentage of adults with at least 4-year college degrees; and 2) the dollars per employed worker in the state spent on research and development.

This is the basis for the 30 and 1000 campaign.

The goal is to increase the percentage of Maine's adults with 4-year college degrees to 30% and increase the amount of R&D spending (by all parties, from all sources) to \$1000 per employed worker in the state.

Climbing toward and hitting these thresholds will release economic activity that leads to widespread prosperity in our new economy. Conversely, if we don't work toward these thresholds, there is almost no other combination of things that will raise Maine's per capita income to this level. Regardless of what else we do, our incomes will lag.

Major Accomplishments Achieved - In three short years Maine's business community, higher education and research institutions, and government have created unprecedented partnerships and made significant progress toward achieving the 30 & 1000 goals. While this Progress Report is not exhaustive it does document the creation of new jobs, the development of new business products and services, and the remarkable leveraging (in some instances of \$6 external dollars for every \$1 dollar in state funds). We are making good progress in creating a knowledge economy in Maine.

Nothing could make it clearer that the nation's economy is now knowledge-based.

March 2003 March 2003

## Goal I. Create, retain and attract knowledge workers

#### PARTNERS:

**Acadia National Park and Schoodic Naval Base** 

Create

Governor's

Academy for

**Mathematics** 

Status: In 2000 the

Academy for Science

Education Leadership was launched by the Maine

Mathematics and Science Alliance with assistance

K-12 science teachers completed 180 hours of

providing online seminars, teaching university

working with staff in their schools. A second

the content expanded to include math.

science, and technology.

Public Education Partnership.

from the Department of Education. Twenty-three

professional development. These teachers are now

courses, offering non-credit courses to teachers, and

group of 30 teachers will be formed in fall 2003 and

Address shortage of teachers in math,

Status: In 2001 the Department of Education

received a one-time \$1.3 million federal grant to

with 20 teachers and has expanded this to

Aroostook County. In 2002 the University of

Maine System announced implementation of the

The 5-year Maine Mathematics and Science Teaching

Excellence project is a \$4.1 million National Science

Foundation effort to increase the supply and quality

England Co-mentoring Network (e.g., Maine, New

Hampshire and Vermont) was initiated. Over forty

of teachers. In 2002 the 3-year Northern New

Maine teacher-mentors will impact 400 teachers

statewide. Between 2001-03 over 120 new K-8

math and science teachers in seven districts were

National Science Foundation to work with high

Increase student aid for higher

Status: Since 2001 General Fund support for

the Finance Authority of Maine's State Grant

Program has been reduced. Although fewer

students are being helped, individual awards

In FY01 the Legislature provided \$1 million in

matching funds to support the Osher

mentored. USM received \$750,000 from the

school science teachers on research projects.

education.

remain the same.

provide mentor training for teachers statewide. The

University of Maine initiated work in the mid-coast

and Mathematics

Science &

Education.

Governor's

**Bigelow Laboratory for** Ocean Sciences

Department of Economic & **Community Development** 

**Department of Education** 

**Finance Authority of Maine** 

**Foundation for Blood** Research

**Jackson Laboratory** 

**Maine Applied Technology Development Center** 

**Maine Community Foundation** 

**Maine Development Foundation** 

Maine Manufacturing **Extension Center** 

**Maine Mathematics and** Science Alliance

Maine Medical Center Research Institute

We will measure our success in reaching this goal by:

- ✓ increasing high school diploma rate from 89% in 2000 to 92% in 2005
- ✓ increasing associate degrees from 2400 to 3500/year; 4year college degrees from +/-6000 to +/-9000/year, including science and engineering degrees from +/-900 to +/- 1200/year
- ✓ increasing science and engineering graduates in the workforce from 9900 to 20,000

Scholarships. In 2000 the Maine Mathematics and Science Alliance received \$950,000 from the National Science Foundation for scholarship funds for students that

want to teach math or science. In 2001 USM raised \$1 million for their scholarship programs.

#### Expand college student and teacher internships.

Status: The University, several private colleges, Maine Technical College System, and state agencies formed a work group, led by the Maine Development Foundation, and developed a Maine Internship Network proposal in fall 2002.

#### Make Maine's graduate fellowships and assistantships nationally competitive.

Status: In 2001 the Integrative Graduate Research and Education Traineeship award was funded by the National Science Foundation. The award supports interdisciplinary training in functional genomics and amounts to almost \$2.7 million over 5 years. The grant supports 14 graduate students each year with a stipend, tuition, fees, and insurance.

#### Involve business leaders, government officials, students, and educators in higher education.

Status: In early 2003 the Maine Develoment Foundation and the Maine Community Foundation prepared to launch the *Compact for* Maine's Future. This 25 member group will develop a long-range plan to enhance higher education achievement.

# USM.

Status: USM and UM are cooperatively offering a graduate program in Bioscience. In fall 2003, USM will implement a MS in Biology. USM is negotiating with UM to participate in the Computer Science PhD program and made new faculty hires to support bioscience and computer science programs.

### Goal II. Conduct world-class research

Strengthen R&D at Maine's principal knowledgegenerating institutions.

follows:

We will measure our success in reaching this goal by:

✓ increasing R&D spending by universities and nonprofit research labs to \$200 per worker (2001 dollars)

Status: Funding for the University of Maine System Economic Improvement Fund (with matching funds in parenthesis) has changed as

• 1997 - \$.5 million (\$3.38M)

• 1998 - \$4 million (\$18.8M)

• 1999 - \$10.1 million (\$36.6M)

• 2000 - \$10.1 million (\$41.2M)

• 2001 - \$10.1 million (\$40.1M)

• 2002 - \$10.1 million

In 2000, UMS issued \$25 million in R&D bonds (supported with \$2.5 million in debt service annually appropriated to UMS) which funded the UM Engineering and Science Research Facility (\$20M) and the USM Science Laboratory (\$5M). In April 2000, the Legislature provided a onetime \$9 million appropriation for UM Aubert Hall renovations. In June 2002, voters approved a \$9 million bond for the Advanced Manufacturing Centers at UM and USM. From these state R&D funds, an additional \$148 million was leveraged between FY98-02, from other sources.

In 2001 the Maine Biomedical Research Coalition was formed by the Foundation for Blood Research, Jackson Laboratory, Maine Medical Center Research Institute, Mount Desert Island Biological Laboratory, and the University of New England. The Legislature created the Biomedical Research Fund and provided \$16 million in funding through bonds and General Fund appropriations. These state funds leveraged \$168 million in federal and private grants providing

\$255 per worker

spent on R&D

30% of adults and \$1000 per worker = \$28,000 in per

spent on R&D

(44th in nation)

How do we compare?

In Maine (2000):

with 4yr. degrees and

If we increased our performance:

19% of adults

(46th in nation)

with 4yr. degrees

\$6.84 in grants for every \$1.00 of state investment.

Plans by Acadia National Park to redevelop the Schoodic Naval Base into a research facility generated \$4 million in federal funds and \$.4 million in state bond funds.

#### Establish the Virtual Maine Biomedical Research Institute.

Status: In 2002 the Maine Research Coalition was created by Maine's leading academic and nonprofit research institutions (Bigelow Laboratory for Ocean Sciences, Jackson Laboratory, Maine Medical Center Research Institute, University of Maine, University of Southern Maine, and the University of Maine System). Its formation recognizes that increasingly complex research requires a depth and breadth of human and technological resources that can only be attained by Maine's higher education and research institutions, working in concert, in bold and creative ways.

#### Recapitalize the successful Marine Technology Fund.

Status: In fall 2001, the Economic Development Bond contained \$1 million for the Marine Technology Fund. Six non-profit research institutions were awarded these funds through a competitive process managed by the Maine Technology Institute.

# Track performance of expanded R&D

Status: In 2002 the Maine Science and Technology Foundation produced the Maine Innovation Index that tracks Maine's progress on over 70 indicators important for building research and development capacity and an innovation

\$23,529 in per

(37th in nation)

capital income

= capital income

economy.

Work continues by the Maine Science & Technology Foundation on a comprehensive evaluation of Maine's public investments in Research and Development including completion of three new case studies on the progress of Maine's R&D investments.

#### **PARTNERS:**

**Maine Science and Technology Foundation** 

**Maine Small Business Development Center** 

**Maine State Chamber of** Commerce

Maine State Legislature

**Maine State Planning Office** 

Maine Technical College **System** 

**Maine Technology Institute** 

**Mount Desert Island Biological Laboratory** 

**National Science Foundation** 

**Northern New England Co-mentoring Network** 

**University of Maine System** 

**University of New England** 

Expand graduate degree programs at